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All change for retail?

The problems at Tesco seemed insurmountable last year: an accounting scandal, falling prices and consumers turning away in their droves towards discount retailers. But January has seen something of a turning point with new CEO Dave Lewis implementing a series of strategic changes that have been warmly received by both the market and industry. Lewis has hired a new PR team, announced closures of under-performing stores and launching an online network for suppliers that will enable businesses to interact with the retailer. Shares in the retail giant have already risen, although they are nowhere near the numbers that Tesco used to enjoy. If you'd like to comment on the retailer/supplier relationship for an upcoming feature, please get in touch at helen.bahia@imlgroup.co.uk



Helen Bahia

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Dutch processor improves forming process

Dalco Food, a Dutch protein specialist, has increased throughput and improved its product forming process.

DALCO FOOD SPECIALISES in developing and producing meat and vegetarian meal components. A family run business, the company has been operating for over 35 years.

The company faced a problem with its vegetarian dough mixture, prior to being formed. A dough that is too hot is sloppy, can't hold its shape and in the case of Dalco Food, can stick to the forming plate, resulting in unnecessary waste. Without the time to spare to store the dough in a cold chamber prior to forming, and the addition of ice water proving insufficient, the company sought a new solution.

"Mixing in nitrogen is a good way of quickly chilling mixtures to the ideal processing temperature of approximately -2°C," says van den Hanenberg. "Since installing the technology, products hold their shape better, so we waste less food. If the mixture is sloppy, more



Dalco Food are now able to quickly and easily set their mixture to the ideal temperature and texture

"We are processing more and more vegetarian products and to form them properly, we had to find another way of chilling them," explains Stefan van den Hanenberg, Director of Operations at Dalco Food. "You can chill meat by mixing it with a frozen product, but you can't do that with vegetarian goods. They consist largely of dry ingredients such as soya, wheat and herbs, to which we add ice water, which gives a mixture with a temperature of approximately 7°C."

The company selected Air Products' Freshline® Liquid Nitrogen Injection Solution (LIN-IS) to optimise its product forming process. The process rapidly cools the vegetarian dough mixture prior to formation, which optimises its forming process and increases throughput. Dalco Food has a long-standing relationship with Air Products, utilising their freezing and modified atmosphere packaging technology and gases since 1996.

of it remains stuck to the forming plate, but that is a thing of the past now and this means a saving of two per cent for us."

Freshline® LIN-IS is a cooling method that injects liquid nitrogen continuously or at intervals through nozzles that are fitted in the bottom of any type of mixer, helping to control product temperature, prevent microbial growth and increase throughput. It is widely used by meat, fish, fruit and vegetables, dairy, ready meals and prepared food processors globally as the temperature control solution is adaptable and programmable to numerous food types, depending on their composition, starting temperature and desired end temperature. The equipment can also be fitted

to any new mixer as well as retrofitted to an existing one.

By fitting the liquid nitrogen injection solution to the mixers, Dalco Food are now able to quickly and easily set their mixture to the ideal temperature and texture. The accurate and replicable temperature control of the dough ensures that the forming step is successful, increasing the rate at which products can be

made and reducing waste by two per cent.

"We've been working with Dalco Food for over 20 years, so the team know that they can trust the advice that our specialists offer, as well as rely on our products and distribution network," says Ann Callens, Food Manager at Air Products. ■



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The who, what, where and why of EHEDG UK & Ireland



After 26 years, the European Hygienic Engineering and Design Group has a dedicated regional section that covers the UK and Ireland. Andy Buchan, EHEDG UK and Ireland representative and MD of ACO Building Drainage, considers the role of the new regional section and the benefits it will bring to the UK and Irish food sector.

THE EUROPEAN HYGIENIC ENGINEERING AND DESIGN GROUP (EHEDG) is a not-for-profit organisation set up to improve hygienic engineering and design across the food and drinks industry for all aspects of manufacturing and engineering. And the latest development is great news for the industry.

When was the EHEDG UK and Ireland formed and who was behind its creation?

The creation of EHEDG UK and Ireland was driven primarily by a group of individuals that include Eric Partington of the Nickel Institute, Debra Smith of Vikam, John Holah of Holchem, Craig Ledley of Campden BRI, hygienic engineering consultant Andy Timperley and myself.

But there are many organisations from across the food and drink industry that are already actively involved. Our first meeting in November was attended by more than 20 representatives from major food manufacturers, leading academic bodies, research companies and industry equipment suppliers who operate through the UK and Ireland.

Many food companies in the UK and Ireland are still relatively unaware of EHEDG and the benefits it can bring to their businesses, so how can having a regional section help?

EHEDG and its regional sections are not-for-profit organisations that work for the benefit of the food industry rather than for commercial

advantage or profit. Its reach spans across 55 countries and in a global industry which is dealing with increasing demand for pre-prepared foods and a reduction in the use of preservatives, its work in hygienic design has never been more important.

EHEDG has more than 350 experts worldwide developing new technical guidelines or updating existing ones. To date, it has published more than 40 guidelines on topics from air handling to food grade lubricants and factory design. This guidance is shared with the industry via EHEDG's comprehensive annual yearbook as well as via EHEDG-approved training programmes.

By collaborating with equipment manufacturers, food manufacturers, leading research institutes and public health authorities, globally EHEDG is able to promote and improve food hygiene during every stage of food manufacturing and processing. It is genuinely committed to working with academia and all parts of the industry.

This collaborative approach is a key strength in an industry which has been traditionally slow to talk about issues and share knowledge. The creation of a regional section covering the UK and Ireland gives organisations working within our food industry the opportunity to become actively involved with the EHEDG and to get their support at a local level.

The formation of EHEDG's regional section in the UK and Ireland will be particularly beneficial for smaller organisations. SMEs simply don't

have the resources or expertise to run their own in-house technical departments, but they still need access to globally recognised, market-leading knowledge and research in order to improve their own standards and to compete. All of this can be provided by EHEDG and it is our hope that SMEs engage with the group and take advantage of the services EHEDG has to offer in order to further improve standards in their own operations.

What are your goals and what support will you give industry over the next 12 months?

One of our core goals is to encourage companies to join and become involved with EHEDG UK and Ireland. Our aims are also to share expert knowledge and best practice guidance by setting up a series of training sessions and seminars, and to help facilitate the inclusion of hygienic engineering and design as a study subject on further and higher education courses.

Ultimately, our activities will complement the work of EHEDG globally, which also includes contributing to European legislation and influencing regulatory bodies by demonstrating practically how existing regulations and industry standards can be met.

And finally, how can our readers learn more about EHEDG and membership in the UK and Ireland?

For more information, please visit www.ehedg.org. ■

Things are heating up in June 2015...

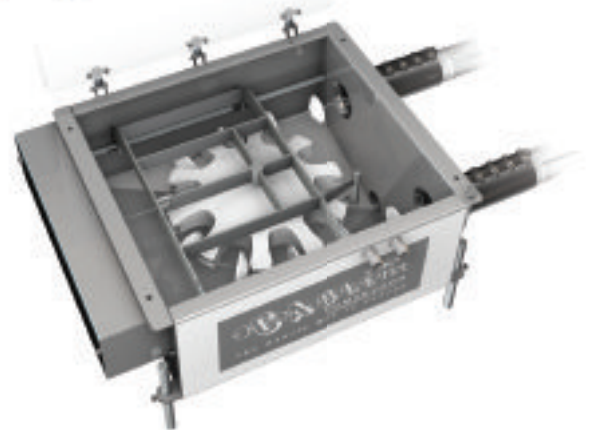


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Getting fit to trade



The fundamentals of the retail landscape look encouraging; the recession is behind us and many of the factors required for long-term growth are in place. Yet the environment continues to become more challenging, as **John Nevens, Co-Founder at Bridgethorne** explains.

FIGURES FROM THE OFFICE OF NATIONAL STATISTICS show that inflation and retail sales are down, as is total health productivity. On the other hand, with competition increasing the market is more fragmented, as shown by the recent relative performance of the different retail multiples, and the landscape is changing. Consumers are becoming increasingly aware and are looking for greater levels of convenience, fundamentally changing the way they shop as a result.

But the need for food isn't changing. Consumers still need to consume, and shoppers need to shop. Retailers need a margin and every business across the board wants to grow and become more profitable. The challenge, therefore, is the extent to which suppliers need to change to adjust to these societal changes.

In the drive to do everything, there is a real risk of succeeding in doing nothing though. The secret to success lies in sticking to the basics and doing the simple things better. This doesn't necessarily mean a wholesale change, but an adjustment to the way they already work. In practice, this means addressing three core areas:

- Category strategy
- Shopper management
- Online

Category strategy

Whether a market leader or a company aspiring to be a market leader or a business looking to influence the category in which it trades, having a category strategy in place is essential. A category strategy should ideally provide an aspirational future view of the category in which it operates with the aim to deliver long-term incremental value. It should be an overarching approach that positively impacts and informs all commercial decision making. This will help companies become more targeted and more relevant to their customers. Collaboration is key, as a category strategy is not about growing a business at the expense of others, it is about helping the entire category to grow, so that everyone can benefit.

Using the central premise that shoppers' needs are met at the point of purchase, the category strategy should address implementation of the right range, space, promotions, layout, merchandising and marketing, based on identified needs and the way that shoppers shop. It should also identify quantified strategic opportunities for both the category and the retailer that focuses on the major drivers and tactics that will increase value; all underpinned by consumer and shopper research and data driven results to give it credibility.

Thorntons

Last year, Thorntons claimed a 12.8% drop in sales in the quarter to the beginning of October was due to a change in the way retail multiples placed their orders. The company blamed the drop in its sales on the timing of commercial orders, although Thorntons' sales to supermarkets have overtaken its high street sales for the first time. This demonstrates the importance for suppliers to really get to grips with the way the multiples work and to ensure that they have the information, the strategies and the practical plans in place to ensure their business meets the needs of the retailer rather than expecting it to work the other way round.

elevating the shopper into a central position in planning can make a supplier's commercial activities far more informed and genuinely optimise commercial spend

Tea

A contrasting situation is forming with UK consumers embracing herbal teas and fruit infusions at the expense of traditional English breakfast tea, a long-held staple for the consumer. Year on year growth in speciality tea and fruit and herbal infusions has been

6% and 5% respectively, compared to a decline of 5% value for the mainstream tea industry. It's a simple reflection of what we see on high streets across the UK, with cafes and coffee shops responding to a need to offer more than just standard black tea, and brands like Twinings, Teapigs and Clipper have grown in popularity. And it's not just the smaller brands, as PG Tips and Tetley have introduced fruit, green, herbal and decaffeinated tea into their ranges. The perceived health and wellbeing benefits are drawing in younger drinkers, which has underpinned the 5% growth in sales of decaffeinated tea in the past year.

An effective strategy

It's clear that suppliers need to have an effective category strategy in place with retailers that can reflect the expectations and goals of both parties. But while retailers are crying out for the data, analyses and reports that help them build a picture of the category as a whole, many suppliers fail to carry out even these routine category management tasks; crunching the numbers, completing the analyses, building the reports, undertaking the range reviews and using the insights from the data to show how to grow the category for the benefit of both themselves and the retailer and how best to channel investment.

The onus is on the supplier to gather and share detailed insights with the retailer that can make a contribution to category planning, range reviews, shopper marketing and account management through analytics and shopper insights. This way, the supplier's expertise and level of influence with the retailer will increase and they can make a major difference in an increasingly competitive environment.

Shopper management

Elevating the shopper into a central position in planning can make a supplier's commercial activities far more informed and genuinely optimise commercial spend. Since better understanding of shopper motivation and behaviour leads to a better return on investment and more effective operation, the challenge is to demonstrate a knowledge and understanding of their needs. For many businesses, the shopper, as opposed to consumer, remains an afterthought. There is an important distinction between shoppers and consumers; purchasing decisions are

made by shoppers who may or may not be consumers as well. Failure to acknowledge this is a risky strategy that can lead to commercial spend being misaligned.

It's important to recognise that commercial function doesn't operate in isolation and that in order for each function to work optimally, they have to work together. The shopper can't and shouldn't be treated as merely an activation tool, but as a strategic equal to the consumer and the customer with clear points of connectivity between the three elements, and can be referred to as Integrated Shopper Management or Shopper-ism.

most shoppers will shop across all channels and through all media and in an increasingly digitised retail world, the shopper dictates the purchase journey, not the retailer

Online

Online will be the fastest growing channel over the next five years as shoppers seek more convenience. It's already here, continually evolving, and understanding category management online is going to be core to any business strategy. Although this space currently represents a relatively low percentage of turnover, the potential is immense, fuelled by new market entrants, the rollout of click & collect, lower delivery charges and greater shopper engagement with mobile technology.

Over the next five years, the three fastest growth channels of convenience, discount and online will increase their sales by £31.3 billion, which is equivalent to 110% of market growth and will be driven by shoppers' increasing preference to shop little and often, substantial retailer investment in new stores and improved formats and the popularity of online. And although superstores and hypermarkets will remain the largest channel in the market by some distance, shifting shopper behaviour will result in lower sales than previously

seen. The overall decline of -4% over the period is modest and the rate of decline will slow as retailers invest in reinventing large format stores to make them easier to shop and more inspirational.

To complicate matters, the purchase journey isn't linear. On the whole, there is no such thing as an internet shopper. Most shoppers will shop across all channels and through all media and in an increasingly digitised retail world, the shopper dictates the purchase journey, not the retailer. Ensuring that this journey is seamless and consistent is priority and retailers expect suppliers to organise themselves with this aim in mind. Although activities across all these channels should be consistent in look and feel, shopper missions and behaviour will be different by channel. Suppliers must adjust to this new reality, and retailers want to see suppliers having a clear online strategy, being able to deliver the basics, ensuring that their plans are integrated and that their channel plans act as one.

This is the challenge facing suppliers now and in the future. It's not only being able to talk the talk of shoppers and category, it's to walk that walk too. ■



New flow wrap technology for United Biscuits' Harlesden factory



In 2011, United Biscuits undertook the first installation of a new flow wrap technology processing line that would lead to improved efficiency, less waste and more flexibility. Phase III was completed in late 2014 and the company now have six flow wrap lines in place at Harlesden. **Food Processing** visited the factory to take a closer look.

THE HARLESDEN FACTORY was built in 1902 by Alexander Grant, thanks to its excellent transportation links via the canal and railway. The factory grew from manufacturing two types of biscuit to 387 product lines in the 1930s. By the 1950s, that number was reduced to just four as the start of mass automation arrived at Harlesden. In 2004, the first savoury snack line was installed and then in 2011, the Thames I flow wrap technology line was introduced, followed by Thames II in 2012/2013.

Now, the Harlesden site is 50,000 square metres and operates 24 hours a day. The factory houses 11 lines making over 115,000 tonnes per year, 11 mixers with a throughput of three tonnes per hour and 11 ovens that run to between 70 metres and 90 metres long. On average, the site uses 275 tonnes of flour, 70 tonnes of oil, 55 tonnes of chocolate

and 44 tonnes of sugar each day and 35 full trailer loads of finished product leave the site daily. The factory runs two rich tea lines, three savoury snack lines, three digestive lines and three chocolate digestive / HobNob lines, producing 50 million snacks biscuits every day and 24 million sweet biscuits every day.

Harlesden is responsible for 40% of United Biscuit's UK volume input and is the largest biscuit factory in Europe. As such, the decision to move to flow wrap technology for specific product lines started back in 2008 and couldn't be rushed. "What we were finding was that old equipment was becoming more difficult to maintain and repair," explains Kevin McGurk, Group Supply Chain Director at United Biscuits. "From a commercial point of view, the old technology limited the number of pack sizes we could achieve. The changeover time from changing pack sizes on

the line was excessive with up to four hours of downtime. When you're producing 2-2.5 tonnes an hour, that's a significant loss of output. We had a lot of discussions about what technology to use and how to invest money to get the most from new technology."

The company were looking to develop something in collaboration with Bosch and installed a pilot facility in their Manchester site that used flow wrap technology. "Throughput was better, manning was less, efficiencies were higher and it was a successful trial," says McGurk. "We put together a programme of investment with Bosch to initially focus on investing in flow wrap for the chocolate digestive lines in Harlesden. The commercial team now have much more flexibility to service consumers. Our team have become experts, alongside Bosch, in putting in these new lines and working with them. The latest

line was up to full speed within two days of installation. It's become a standardised technology for our biscuits in that we can use the same technology for each product, increasing our efficiencies and commercial options for the future, so it's been a successful project all round."

The benefits of flow wrap technology for United Biscuits

One of the biggest benefits to the new technology is the easing of the bottleneck in the wrapping area. "This technology runs continuously without stopping," explains Arthur Lawrence, Manufacturing Manager at United Biscuits. "On one line alone, we've increased output from 55 tonnes a day to 70 tonnes a day. The lines work on three legs each, and the advantage is that two legs can take the full output of the line, so all changeovers are done on the run, without stopping the process, saving us four hours each time. We've also made considerable savings in terms of waste. The same line that ran at 4.5% waste is now well under 2.5% waste since the upgrade as we've saved millimetres on each pack with the new wrapping. Monetarily speaking, it's worth over a million pounds a year." In addition, the new technology uses airbeds for the biscuits to slide down before they drop onto the belt. The feed systems are much gentler than the old line. "We've made more savings on waste reduction on the digestive rather than the chocolate digestive, probably because the half-coated biscuit is more robust where it's held together by the chocolate," says Lawrence. "We were running at around six per cent waste and now it's around two per cent."

For some of the line installations, the company had to stock build and take production offline for a month, while on others, as there was more space available, the lines could be added without any loss of production. It's also startlingly peaceful, with only a handful of people needed to run the lines and hardly any noise produced by the lines.

Ovens

In the oven room, there are 10 direct gas fired radiant ovens and one forced air convection oven. The shells have been in place since the 1950s and 1960s, with the equipment itself upgraded as needed. "As a business, we put a lot of investment into designing new



burners about five years ago, making the gas ovens more efficient in terms of gas usage and give the same energy and heat," says Lawrence.

The ovens run three digestive lines, three chocolate digestive lines, two rich tea lines and three savoury lines. "Digestives are made from a very short dough, almost like shortbread dough," explains Lawrence. "We use a medium level of heat over 200°C with a relatively long bake time of six to six and a half minutes. The oven is set up to give a lot of heat within the initial zones to produce lift, to bake the product and extract moisture in the middle zones and give it colouration in the end zones.

"The mini cheddar line bakes for a much shorter time, at a higher temperature of around 300°C and above. We then apply 14% oil including flavouring as a mist which is sprayed onto the product before the cheddars cross over the factory to be packed. Rich tea on the other hand is a shorter bake, at just over five minutes at a temperature between mini cheddars and digestives. The rich tea dough has a lower fat more gluten formation with very elastic dough."

The Harlesden site is also responsible for chocolate HobNobs. "Made with oats and wholemeal flour, it's quite a difficult biscuit to control in terms of consistency," explains Lawrence. And above the ovens is the mixing area, split between bulk and small ingredients. Whey powder, cheese powder,

raising agents, sodium bicarbonate and other small ingredients are fed in small batches while the bulk ingredients are transferred over from silos. "We have 11 mixers, all automated," says Lawrence. "Typical batches vary between 600 – 750 kilograms with a throughput of around three tonnes per hour. Three of our mixers sit on their own load cells so the ingredients are weighed as they're dropped into the drum, all others pass through a centralised weighing system for the other ingredients. Next year, we'll be looking into replacing all our silos with purpose built vessels with a view to the future. We want this factory to be a 160 – 170,000 tonne site and we have to invest to do that. Because our lines are becoming more efficient, with less waste, we need bigger silos to meet this increased efficiency."

Product is then dropped down from the mixing room through a hopper. On the digestive line, the product is cut into small pieces before going through a forcing roller which compresses the dough into the moulding roller, which passes over an extraction web. The product size and shape can be altered depending on the pressure between the two. The product then goes through the ovens. Any excess dough is fed back into the system to minimise waste.

The rich tea dough is initially fed through a three roll sheeter. The dough is then fed through a series of two to one reductions. The product goes through a laminations process, and the resulting layers can be seen



when breaking open a rich tea biscuit. Air pockets between the laminations are also developed so that moisture extraction is much easier within the oven. The product then goes through a four to one, then three to one and finally two to one reduction. The product goes through an emboss roller and cutter before it goes through the ovens. Again, any excess dough is fed back through the system.

The chocolate digestives are sent from the ovens through a series of shell coolers to bring the temperature down to around 27°C. Chocolate is stored at around 44°C and pumped into a tempering unit. The chocolate is applied at between 30-32°C depending on the enbrober. A bed of chocolate covers the bottom half of the biscuit before it's cooled.

While the biscuits go through to flow wrap and roll wrap lines, the savoury products cross over the factory to the packing area. The company is proposing to invest in central auto palletisation. The old lines were lifted from Ashby around 10 years ago and allow the savoury products to be hand packed or multipacked. "We rely on agency staff for hand packing," says Lawrence. "We only need three to four packers for an output of 1.6 tonnes an hour in the larger multipacks. On the automated line, we only need six staff to run the entire primary and secondary packing area for savoury products."

Future growth

United Biscuits currently exports to 130

countries, with their biggest growth markets identified as Africa, the Middle East and China. "We've successfully grown in India already," explains McGurk. "We invested about five years ago and it's been incredibly successful, particularly given the heritage of UK products in India. We have manufacturing facilities in India, Saudi Arabia and Nigeria now."

And there's that small matter of Yildiz Holding acquiring United Biscuits, after months of speculation that had several leading biscuit companies vying for their business. "There's a lot of synergy with Yildiz that we're excited about," says McGurk. "They're big biscuit producers, but in different markets to those that United Biscuits are strong in. They don't have huge numbers in the UK, for example, while we're the leading manufacturer in the UK. On the other hand, they have a good market share in Middle Eastern countries. So we're excited and looking forward to what we can achieve together."

The company is also focused on Lean, which was implemented about seven years ago as a company toolkit for management to utilise as they strove for more efficiency on the line. "We've refocused our Lean programme in the past 12 months," says McGurk. "It was successful as a management tool but now we're bringing it to the operators who use the equipment so that they know how to use Lean tools and techniques so they can use them to drive efficiency. We've recently taken

operators from the line to train them via workshops on how get back to basics in assessing and analysing how manufacturing lines operate, where the bottlenecks form, where waste is higher and so forth. Once they understand their production line, then they know how to fix the problem and work with management and consultants on improving waste and lowering bottlenecks and increasing throughput on their lines. It's been a really successful trial and has upskilled our workforce at the same time."

Engineering in the food industry

McGurk believes that food engineers face a combination of issues from skills to efficiencies to developing technology. "For us, if we look at Harlesden specifically, the engineering tasks are changing," McGurk explains. "We've got an ongoing, significant investment in automation. We've moved to changeovers on the run, which means that technicians can manage those tasks rather than engineers. Our engineers have had a refocus on preventative maintenance, and bringing their job remit very much back to traditional engineering tasks. Our team is looking at the future to ensure they're supporting a modernised environment with preventative maintenance. Ultimately, we're looking to lowering our overheads to make us as competitive as possible, and a big part of that is looking at modernised ways of working across operators, advanced team members, engineers and technicians in order to help drive the company forward."

That drive also helps the company when it comes to the skills shortage that the food and drink industry is facing. "Enhanced automation can be managed better through smaller engineering tasks," says McGurk. "But there's still a skills shortage in terms of pure engineering. We have a graduate programme within United Biscuits that goes across the supply chain, and that includes engineering. The programme cycles graduates through different functions of the business depending on their specific requirements and where they'd like to see their careers progressing, and engineering is a large part of that. We're looking develop both our engineering management capability but also our engineering apprenticeships as well. We work with the College of North West London and we have engineering workshops where students from the college come in and have lectures and practical training onsite." ■

Making chocolate from beans: what's involved?

The craft of making chocolate stems from the humble cocoa bean. **Ramana Sundara, Angel Manez and Fabien Coutel** from the **Nestlé Product Technology Centre in York** describe the process in more detail.



INDUSTRY DIFFERENTIATES between cocoa processing and chocolate manufacturing. Cocoa processing covers the activity of converting the beans into nib, liquor, butter, cake and powder. Chocolate manufacturing covers the blending and refining of cocoa liquor, cocoa butter and various optional ingredients, such as milk and sugar.

Cocoa processing

Ripe cocoa pods are gathered every few days during the peak season. The pods are split open by hand, and the seeds or beans, which are covered with sweet white mucilage, are removed ready to undergo a two-par curing process of curing and drying. The fresh beans are heaped and covered by banana leaves or placed in a wooden box, typically for five days. Pulp is an excellent medium for the growth of microorganisms since it contains 10 – 15% sugars. Their activities result in changes in the beans due to the production of acetic acid and alcohol, leading to the formation of cocoa flavour precursors via a series of chemical reactions. Cocoa beans are dried after fermentation in order to reduce their moisture from approximately 60% to 7.5%. At this point, the dried beans consist of a thin shell enclosing the kernel of the bean.

After harvesting, fermentation and drying, commercial cocoa beans are bagged and then processed locally or shipped overseas in containers. Industrial cocoa processing begins with cleaning, during which air streams, sieves and metal detectors are all utilised to remove any stones or metal particles. Beans are heat treated to pop the shell and aid in the winnowing step. Beans

are generally broken in a swing-hammer breaker in which centrifugal force is used to break the beans against an impact plate. After breaking, the shell and nibs, which are the broken pieces of the kernel, are separated by winnowing during which the nibs are divided into a number of fractions by means of sieves and an air classifier (or sifter) separates the shell from the nibs.

The nibs are then sterilised by injecting steam into the beans to remove any microbial contamination. After sterilisation, the nibs can be roasted directly or can be alkalisated first, known as the Dutch process. During alkalisating, the cocoa nibs are treated with an alkali solution such as potassium or sodium carbonate. The Dutch process primarily modifies the flavour and colour of cocoa liquor and is mainly used for the production of cocoa powder.

Roasting

The next step is roasting. During this process, the cocoa darkens to a rich brown colour and acquires its characteristic chocolate flavour and aroma. Maillard reactions play a major role in developing the flavour in the beans from the precursors formed during fermentation and drying. Moisture and acidity are also reduced during roasting.

Whole bean roasting is the original method and often used to produce cocoa masses with fine flavours as it helps to retain the volatile cocoa flavours within the bean during roasting. Cocoa beans are exposed to temperatures of around 120 – 140°C for 15 to 45 minutes. This type of roasting allows for the relatively easy removal of the shell as it becomes loose during the roasting process. Currently, nib roasting is also widely used in part due to the distinct improvements in the cocoa powder when alkalisating the nib before roasting. The nibs are roasted at temperatures between 105 – 120°C depending on the desired characteristics.

Existing roasting systems often use conduction and/or convection as the heat transfer mechanism and an effective

debacterisation is essential in order to ensure that it kills any pathogens such as *Salmonella* and reduces the total bacterial content. To avoid cross contamination, it is extremely important to maintain a strict separation between raw and roasted material. As an alternative to batch drum type roasters, continuous vertical roasters can be used for cocoa beans or nibs. This type of shaft roaster is divided into a number of sections; the top sections are used. Earlier researchers also reported liquor roasting, which is produced by a fine grinding of cocoa and liquefying within its own molten fat. Special thin-film techniques were developed for the roasting of the cocoa liquor.

Grinding

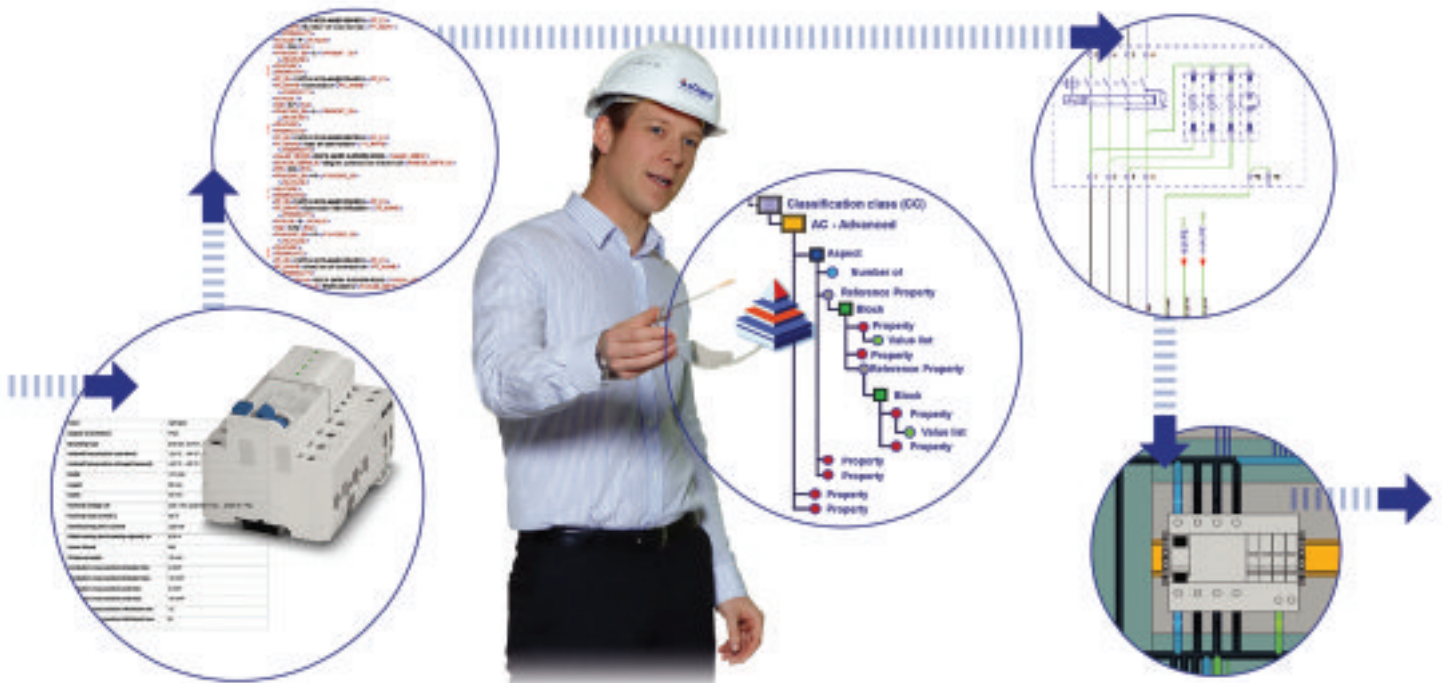
The roasted nibs are coarsely ground in a hammer/ball/stone mill until the friction and heat of the milling reduces them to a thick chocolate-coloured liquid, known as 'cocoa mass'. During subsequent fine grinding, the cocoa mass is refined down in ball mills to the required particle size. It contains 53 – 56% cocoa butter and solidifies on cooling. This is the key ingredient of all chocolate and cocoa products. Both non-alkalised and alkalised cocoa masses can be pressed on hydraulic presses to produce cocoa butter and cocoa powder.

Pressing

The pre-heated cocoa mass is transferred into the so-called pots and when the pressure is increased, the butter flows out of the cocoa mass. The cocoa solids that remain in the pots form the cocoa press cake in which the fat content is normally 10 – 12%. When the pressing is done, the press opens and the cakes fall out. Hydraulic pressure of up to 540 bar may be used. After pressing, the cakes are broken into kibbled cake that is typically stored by fat content and degree of alkalisating and may be blended before pulverisation to obtain the desired type of cocoa powder. The cocoa butter is filtered and can be deodorised and stored in heated tanks. ■

Efficiency and connectivity: what's new in the market?

Plenty of new technology and innovations have hit the drives, motors and controls market as companies showcase their latest developments. Here, **Food Processing** rounds up some of the latest solutions on offer for those working in the food and drinks industry.



© Phoenix Contact

ONE OF THE BIG DRIVERS for growth in industry as a whole is digitalisation and integration. Siemens have long championed digitalisation of industrial automation and they've recently pinpointed the merger of industry software and digital technologies as pivotal factors behind the company's continued growth. In the food and drink industry, as well as other process industries, stable processes and resource-saving technologies have been given prior significance. "The value chains and work flows taking place in the process industries call for a close-knit technological partnership based on trust," says Peter

Herweck, CEO of the Process Industries and Drives Division of Siemens. "We have aligned our portfolio including services along the entire lifecycle of our customers. Our offering unites high-grade, proven and standardised products with industry-specific solutions, covering all the decisive core elements – from integrated engineering systems and process control systems through integral communication down to the field level, for instance with process instrumentation and analytics, as well as Integrated Drive Systems (IDS) with outstandingly efficient and reliable drive technology."

COPA-DATA

The continued progression towards Industry 4.0 continues, with themes woven through many new products as companies look towards integration, flexibility and expandability. COPA-DATA are the company behind the zenon product family for HMI/SCADA, Dynamic Production Reporting and integrated PLC systems, which allows companies to establish solutions for control, visualisation and data analysis. In particular, COPA-DATA focus on security, as there is a growing concern that production processes are open to attack, whether on site or in the Cloud. The 128-bit encryption of the

communication between server, standby server and client, comprehensive access control with the integrated user administration and active directory support protect the user from unwanted data loss. Zenon allows networked, secure communication.

Often, the goal for manufacturing companies is to increase overall equipment effectiveness and reduce consumption in the factory, while at the same time large companies divide their production and production and consumption data across plants at various different sites globally. This can result in optimisation potential being lost. If businesses moved their data into the Cloud, they could profit from tools or cross-equipment and company-wide benchmarking, and comprehensive analyses for total consumption or for quality figures from the entire operation.

"Volatile and rapidly changing markets, as well as complex manufacturing processes present major challenges for production companies," says Jürgen Schrödel, Managing Director of COPA-DATA in Germany. "Flexible and quick-reacting production systems support companies with overcoming this challenge and allow them to be able to continually react economically."

Phoenix Contact

Meanwhile, Phoenix Contact are also pushing towards Industry 4.0 with their demonstrator, a machine that illustrates how some aspects of the Industry 4.0 future project can be implemented based on the example of automated control cabinet construction. During the first step, the user creates a wiring diagram with an ECAD system and then uses the diagram to design customised terminal blocks. The wiring diagram is used as input for the design of further assembly stages and serves as the basis of the wiring concept. The idea behind this is to encourage compatibility, as most companies use different engineering tools for separate planning steps and these tools are generally incompatible with one another.

Phoenix Contact combines standards AutomationML and eCl@ss to create a continuous engineering process. AutomationML defines systems as well as articles to be produced in the plant, which allows all engineering tools to work with the same files. In order to have a consistent interpretation of the file data, the AutomationML version used at Phoenix

Contact includes role class libraries on the basis of the eCl@ss classification standard and this precision article description scheme enables developing technical systems in the spirit of Industry 4.0 by allowing them to independently identify the manufacturing stations required to produce a system.

the goal for manufacturing companies is to increase overall equipment effectiveness and reduce consumption in the factory

Crouzet Automation

Crouzet Automation has released em4, a high performance nano-PLC with the ability to communicate as part of the Internet of Things. Recognising the challenges of machine-to-machine technology, Crouzet sought a solution to the need for connectivity of their installations. The new nano-PLC can be fully remotely controlled and has been designed to make a totally integrated solution available to integrators and OEMs, allowing them to reinvent their applications and generate new business opportunities. The em4 range comprises of em4 remote, fully connected to the secure infrastructure, em4 alert, capable of sending SMS or email alerts and em4 local, designed for applications that do not require remote communication or only a local area network.

One of the main strengths of em4 remote, the flagship product, is its connection to the internet. That means it can offer programming, monitoring and control and datalogging functions that allow remote management of an application, a single machine or a fleet of machines, making em4 part of the Internet of Things. In terms of data exchange, em4 has no embedded web server, but operates on a machine to machine connection. This is essentially an exchange of raw data between the controller and the dedicated server. Communication is therefore optimised and the server's memory space is prioritised over the em4's embedded memory.

In the under 50 I/O category, em4 is the first automation component that can interact with high precision industrial sensors operating at 0-20 or 4-20 mA. These robust inputs embedded directly in the product avoid measurement errors linked to the distance between sensor and controller, while ensuring one per cent measurement accuracy.

Invertek

Invertek have recently launched the third generation range of their Optidrive general purpose drives. Available in four frame sizes, Optidrive E3 offers energy saving performance and is compatible with global supply voltages for motor control up to 22kW. Optidrive E3 also has extended motor control to cover IE2, IE3 and IE4 permanent magnet and synchronous reluctance motors and has been developed to ensure it is easy to use globally.

A robust design allows Din-rail mounting or simple keyhole mounting as required, and the power supply is connected at the top with the motor supply connected at the base. The design makes installation easy and with 14 basic parameters, setting up the drive for a huge range of applications is simple and with less than 60 parameters in total, Optidrive E3 offers a high degree of flexibility.

The new range is available in IP20 and IP66 versions and can be directly mounted to machines and specified with an isolator / disconnect switch. Optidrive E3 is equally suited to fan and pump applications, switching from industrial mode to fan or pump mode at the touch of a button.

Lenze

Lenze have proved that being more efficient does not automatically mean being bigger. The company has launched new m200-P and m500-P three-phase AC motors which achieve the premium IE3 efficiency class in accordance with IEC 60034-30 without any jumps in size compared to IE2 motors. The m200-P motor offers a power range between 5.5 and 45kW with a variety of voltages for direct on-line mains operation with fixed speeds and 400V supply, while the m500-P motors cover the same power range and are optimised for use with frequency inverters, but can also be operated straight from the mains.

The m200-P motors are designed for simple fixed speed applications and costs are minimised by limiting the range of options, although spring-applied brakes are available and not grading the insulation for inverter operation. The m500-P motors suit more challenging applications, while use with inverters is unrestricted and the full range of options includes brakes, encoders, blowers and plug connectors.

The two new ranges reduce the amount of energy lost and therefore reduce energy costs by up to 20%, meaning that investment in the technology usually pays for itself within the

first two years. Other advantages include increasing the inertias, the starting torques and starting currents, which may require a re-evaluation of the drive train, as for example the gearbox may not suit the increased starting torque.

being more efficient does not automatically mean being bigger

TE Connectivity

With several new products in the market, TE Connectivity has solutions for both factory automation and machine building applications. Their new range of ruggedised industrial RJ45 connectors for industrial use is equipped with robust termination technology for time saving and flexible field installation. The range includes an Industrial RJ45 Push Pull Variant 14 connector with a plastic shell and an Industrial RJ45/Fibre Optic Push Pull Variant 14 with a metal shell. Both types have durability to provide reliability for increased lifetime, which will result in cost-savings. Both also offer high-grade IP shielding and temperature resistance, which makes them suitable for harsh and outdoor environments. TE has also launched a new range of high-speed industrial RJ45 Cat6a field-installable connectors, which enables excellent signal performance for field termination without tools. The connectors support 10G/s Gigabit Ethernet and their connector structure and IDC contacts allow reliable installation.

Molex

Molex Incorporated have introduced modular D-Sub mixed layout connectors and cable assemblies through FCT electronic GmbH, a Molex company. The UL-approved D-Sub mixed layout connectors can combine power, signal, RF and pneumatics to accommodate a range of industrial automation applications and are tailored to meet specific customer requirements. For harsh environments where regular wash-downs are required such as the food and drink industry, up to IP69 sealing is available.

"The mixed layout series is designed modularly," says Thomas Winderl, Marketing FCT, Molex. "We offer 75 and 50 Ohm coaxial contacts, high power contacts up to 40 A, high voltage contacts up to 3kV and pneumatic

contacts with numerous different contact arrangements accommodated according to design requirements."

Solder, straight PCB or crimp terminations are available, depending on the end application. And depending on customer requirements, various plating options are available, as well as a comprehensive range of accessories including sealing plugs, guide pins, guide plates, hoods, spring locks and slide locks.

Delta Electronics

Delta Electronics have expanded their Delta Industrial Ethernet Total Solution range with two new industrial Ethernet switches. The DVS Series features numerous management functions in order to ease configuration and to ensure a safe operation. IPv6 address is suitable for larger network and neighbour discovery. They support EtherNet/IP and MODBUS TCP protocols that facilitate the remote management by SCADA and other industrial devices. The rugged switches are designed to operate in harsh industrial environment and feature a wide operating temperature from -40°C to 75°C. They comply with international safety standards (UL 508, EN 6090-1 and IEC 61131-2) and are fully proofed against mechanical damages.

maxon motor

Adding to the ESCON servo controller family, maxon motor has developed a miniaturised postage stamp-sized OEM plug-in module. Designed to command permanent-magnet-activated brushed DC motors and BLDC motors (brushless DC motors, so-called EC motors) with Hall sensors up to 48W continuous output and 144W peak output, the high performance 4 quadrant PWM servo motor controller has high usability and power density. The servo controller has new functionality, including RC servo signal evaluation for speed or current set values, current limiter and offset and the option to predefine analogue speed ramps. With speeds up to 150,000 rpm, the OEM plug-in module provides extensive functionality with free configurable digital and analogue inputs/outputs which can be operated in various modes.

As maxon motor believes that top performance should not be a matter of trial and error, the servo controller has been designed specifically with easy start-up and user-friendliness in mind.

ABB

There are a host of new products being released by ABB that are targeted specifically at the food and drink sector. ABB's industrial drive AVCS880 includes fourth generation DTC with enhanced performance in open and closed loop and a higher switching frequency. And in March 2015, the ACS580 replaces ABB's most successful drive to date. The ACS355 is, according to ABB, is the ultimate drive for high pressure cleaning in food and drink environments. Highly resistant waterproof casing and rounded edges prevent ingress of water and build up of bacteria. There is no external fan, making the drive more hygienic and an enclosed control panel behind a protective membrane.

ABB are also providing a new service, their Energy and Productivity Improvement Plan. With 10 stages, it is designed to help food and drink manufacturers assess the benefits of installing motor and variable-speed drive (VSD) technology. It features a six stage energy and productivity appraisal that can be carried out in half a day. Data analysis, calculations, measurement, recommendations and follow-up complete the appraisal steps to deliver energy and productivity improvements.

the continued progression towards Industry 4.0 continues, with themes woven through many new products

B&R

The new ACOPOS P3 is a 3-axis servo drive that offers a power density of 4A per litre, which makes it one of the most efficient servo drives with integrated safety functions on the market. The housing is as small as a conventional one-axis drive, which makes it possible to reduce the amount of space required in the control cabinet by 69%. The short cycle time opens up new opportunities for drive control and the drive features many safety functions that satisfy SIL 3 / PL e / Cat 4 requirements, and the Safely Limited Torque (SLT), a new function, checks whether the maximum permitted torque has been exceeded. ■

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Inspection cure for drink processing headaches

With difficult operating conditions, drink processors well aware of the importance of reliability and short machine cycle times. **Dan Rossek, Product Marketing Manager at Omron**, examines the benefits of using vision systems for inline detection.

VISION SYSTEMS FULFIL a wide range of uses throughout the production process, making them a cost-efficient, dependable solution when inspecting the exterior quality of products and packaging. As a quality control measure, vision systems can be used to inspect empty containers before the actual filling process, or for final exterior quality inspections such as labels and booklets, or to detect the presence of straws, for example. For a complete quality control solution, the final exterior inspection is therefore often integrated into a final inspection station, incorporating other technologies.

Thanks to this flexibility, vision systems tend to be utilised for higher value products, such as verifying serialised 2D codes on labels to fight counterfeiting. In a recent project, this feature successfully detected counterfeit bottles of cheap wine labelled as expensive Italian wine.

Addressing inline detection headaches

However, there are still hurdles to cross in terms of technology and cost, depending on the process and application. As an example in technology, in high speed processes where the detection and image speed is critical, or in other applications, having several inspection points on a bottle demands the use of multiple cameras. Pre-processing these different camera images into a single image for evaluation can be crucial for manufacturers. An aspect often raised is the required flexibility to adapt inspection to different sizes, containers and marketing programmes.

In terms of cost, price pressure is a significant hurdle too. Two very different trends have been generated from this, and while part-cost reduction is a common approach,

there is also the need to evaluate the overall task and measure the cost improvements, taking the Total Cost of Ownership (TCO) into consideration.

By adopting the latest technological developments, drink manufacturers can overcome the hurdles of current inspection challenges. Using parallel hardware architecture, image acquisition and pre-processing speeds have been improved. In addition, software image processing speeds have increased by using new algorithms. Technology features such as the 'sparse edge' detection feature and variation prediction allows fast, precise measurements to be made, even if images are out of focus.



Communication speeds to databases, PLCs or other devices have also been improved by utilising the EtherCAT machine control network. This enables the implementation of motion control to be synchronised with the communication cycle.

Best solution?

With so many vision systems available, it's important to identify the best solution for a specific application and the right tool with the appropriate performance. If processing speed is vital, then processors should be looking at the latest vision technology which boasts to be 10 times faster than their predecessors.

The drinks processor should also be looking for inspection performance ideally with quad core processing and a fast image capture rate. By choosing a system that offers speed, performance and versatility, operators can achieve shorter machine cycle times and improved production line efficiency.

What's next?

So, if the quality and efficiency of beverage plants is to continually improve, how should inline inspection vision systems evolve? The current 'smart phone' generation is used to having data available at their fingertips wherever they are, so users expect more intuitive interaction between devices. Therefore, drinks manufacturers will go beyond the mere inspection of products and look at tasks that incorporate smart user interaction, interfacing between devices and machines, data storage and evaluation. I believe this is certainly something that the future holds for the drinks processing industry. ■

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The acrylamide debate

What exactly is acrylamide and how can manufacturers reduce acrylamide in their foods? **Beate Kettlitz, Director, Food Policy, Science and R&D at FoodDrinkEurope** investigates.

IN APRIL 2002, acrylamide was accidentally discovered by the Swedish National Food Administration along with a group of researchers at the University of Stockholm. A substance that naturally forms in certain foods, particularly plant-based foods rich in carbohydrates and low in protein, during cooking at high temperatures, acrylamide is not a new substance and has likely been part of the human diet for thousands of years. It isn't added to foods by manufacturers and is simply a by-product of processing.

How does acrylamide form in foods?

Acrylamide is mostly formed when the natural amino acid asparagine reacts with naturally occurring sugars such as glucose. It is part of the Maillard reaction, which is the chemical reaction that forms the brown colour and flavour for foods that are cooked, baked, toasted or roasted.

The health risk to humans remains unclear. Dietary exposure to acrylamide has been identified as a potential concern by the Joint FAO/WHO Expert Committee on Food Additives (JECFA), but the committee has also stated that it is currently not possible to determine the precise level of risk to human health. Acrylamide in high concentrations has been found to cause cancer in animal experiments, but further research on the effects of exposure to acrylamide is needed before the risks to human

health associated with acrylamide exposure from food sources can be fully understood. The EFSA risk assessment and scientific opinion of acrylamide is expected by mid-2015. The food industry has collected around 36,000 acrylamide data points to show the effects of mitigation strategies and shared these with risk assessors.

The explicit guidance from international and national regulatory authorities, including the WHO/FAO, European Commission DG SANCO and several European food authorities is that the general advice on healthy eating remains unchanged and consumers should continue to eat a balanced and varied diet.

Where can acrylamide be found?

Acrylamide has been found in a wide range of carbohydrate rich foods which naturally contain the amino acid asparagine and reducing sugars (glucose and fructose). This can include toast, fried potatoes, biscuits, crisps and breakfast cereals.

Cooking at temperatures significantly above 120°C can cause the formation of acrylamide

alongside the colour and flavour developed, for example baking, roasting, grilling or frying. This of course means that food prepared at home and for catering purposes can be sources of acrylamide in diets too.

For cereals, the amount of acrylamide formed in a given cooking process is mainly determined by the amount of asparagine present in the crop. Asparagine cannot be eliminated entirely as plants use it in their process to store nitrogen from the soil, but in the future it may be possible to grow grains with relatively lower asparagine levels.

As the food industry has worked to reduce the level of acrylamide in foods, the dietary intake of acrylamide from industrially processed foods has decreased.

Collaboration

In 2003, FoodDrinkEurope formed a technical expert group to openly share research and disseminate information on how best to adapt production processes and implement mitigation measures. The organisation's ongoing goals are to evaluate new ways to reduce acrylamide formation identified in research programmes around the world; and to reduce acrylamide levels in line with the ALARA (as low as reasonably achievable) principle.

FoodDrinkEurope have developed an Acrylamide Toolbox, available on the website of the European Commission, which provides information on the methods of acrylamide mitigation that are known to work in food manufacturing processes and considers the potential methods of reduction that are at pilot and laboratory scale trials. It provides a summary of the industry's knowledge concerning the possible means to minimise acrylamide formation in foods.





The food industry sectors have collaborated with the European Commission and Member States to produce sector specific pamphlets on ways to reduce acrylamide in food production. First published in 2007, the pamphlets cover six food sectors, including biscuits, crackers and crisp bread, bread products, breakfast cereals, fried potato products including potato crisps and French fries, and infant food – publication pending. The pamphlets are available in all 23 official languages of the European Union and are aimed at SMEs. European SMEs often don't have the resources to access the latest research findings and the pamphlets meet the needs of SMEs by allowing smaller companies to keep up-to-date and use the latest tools to reduce acrylamide formation in their products.

While the food industry continues its efforts to further mitigate acrylamide, it's important that the various sources of acrylamide, such as home cooking and catering, are looked at too. There have been extensive studies into acrylamide formation and minimisation strategies in the laboratory and in industrial environments where the processing and heating conditions are better controlled than in home cooking. HEATOX researchers conducted a number of experiments related to deep-fried French fries, crisps, oven roasted potato wedges and toasted bread. Exposure from home cooking comes primarily from potato products with some addition of toasted and homemade bread. Home cooking, especially potato products,

can generate a large and almost unpredictable variation, even for the same product and for the same cook, which makes it difficult to predict the real intake from home-cooked foods.

Conclusion

FoodDrinkEurope continues to regularly update the toolbox with the newest scientific and technological developments, and subsequently update the related pamphlets if new tools are proven to be useful to try at an

industrial scale. The next revision is planned for mid-2015. The organisation will also continue its activities in research to further improve mitigation strategies, both at a processing and agricultural level. Although FoodDrinkEurope cannot reach all individual companies, members of the organisation offer to be a partner in education / training for both small and medium sized enterprises; they also help national authorities understand how and when to use the appropriate mitigation strategies. ■

EFSA scientists meet over acrylamide consultation

On 11 December 2014, around 50 participants met to discuss comments to a recent public consultation on acrylamide in food. Representatives from national food safety agencies and scientific advisory bodies, the food industry and academia and EFSA scientific experts congregated to focus on EFSA's recent draft description of the potential health risks of acrylamide in food and estimation of human exposure to acrylamide in the diet. EFSA provisionally concluded that acrylamide in food potentially increases the risk of developing cancer for consumers in all age groups.

"The meeting has been useful for us to listen, discuss, explain and better understand the public consultation results," said Dr Diane Benford, Chair of EFSA's Panel on Contaminants in the Food Chain (CONTAM). "This will certainly help us to refine our risk

assessment and provide clear, scientific advice for risk managers to use in developing regulatory or other measures."

Nine invited guest speakers gave presentations on issues they raised during the online consultation. These formed the basis for further discussions among participants. A representative of the European Commission also gave a presentation on the background to the request sent to the EFSA and the next steps for EU risk managers once EFSA's opinion is finalised. The Commission considers the implementation of voluntary mitigation measures to reduce acrylamide levels in food unsatisfactory and variable among food business operators. The Commission, together with risk managers in Member States, will discuss further measures at EU level to reduce acrylamide levels in food as low as reasonably achievable.

The renewable heat incentive: substantial payback?

With the Renewable Heat Incentive, could installing a heat pump offer improved energy efficiency and the possibility of significant payback? **Tom Marshall, Sales Engineer at GEA Refrigeration UK** explains.

THE RENEWABLE HEAT INCENTIVE (RHI) comes in two parts: the domestic and the non-domestic scheme. The non-domestic scheme has been open to commercial, industrial, public sector, not for profit and heat networks since November 2011. The scheme is designed to bridge the gap between the cost of fossil fuel heat installations and renewable heat alternatives through financial support for owners; a gap which often deterred individuals from renewable heat options.

RHI is the world's first long-term financial support programme for renewable heat. Anyone generating and using renewable energy to heat their buildings could benefit from RHI. By increasing the generation of heat from renewable energy sources instead of fossil fuels, the RHI helps reduce greenhouse gas emissions and meet targets for reducing the effects of climate change in the UK.

Key features of the new policy for the non-domestic scheme, published in late 2013, included an increase in support for renewable CHP, large biomass boilers (over 1MW), deep geothermal, ground source heat pumps, solar thermal and biogas combustion. New support was introduced for air-water heat pumps and commercial and industrial energy from waste. An evolved approach to budget management, using improved market intelligence to allow credible growth rates across the technologies supported was highlighted, whilst ensuring that the scheme remains affordable and achieves value for money.

The government estimated that the policy changes could incentivise around 5,000

new, non-domestic installations and an additional 6.4TWh of renewable heat by the end of 2015/16.

With the new regulations, applications submitted for ground-source and air-source heat pumps are required to include: a design seasonal performance factor (SPF) of at least 2.5; measurement of electrical input to calculate SPF and provide quarterly meter readings; ground-source heat pumps capable of simultaneous heating and cooling will have to measure heat drawn from the ground and provide quarterly meter readings; ground-source heat pumps capable of cooling must provide a capacity value based on the heating function only; in addition to using naturally occurring energy

in the form of heat, ground-source heat pumps will be able to use heat gathered and stored in the ground using solar collectors providing no other subsidy, from space cooling or process cooling or waste from industrial processes. As a result of the new amendments, the ground-source heat pump (GSHP) technology will receive a tariff increase. GSHPs will receive an increased tariff of 8.7p/kWh of generated heat for the first 1314 hours and then will receive 2.6p/kWh thereafter.

Implications for the food industry

There is a large amount of heat that can be recovered from the refrigeration plant in the food industry. To harness this heat and create water at 65°C, a heat pump could be added to the refrigeration system. From a freezer to a water chiller providing air conditioning to offices, the principal is based on the fact that a refrigeration system absorbs heat at a low temperature and then discharges it to the ambient at a warmer temperature; just not warm enough for practical use. Which is where the heat pump comes in.

A typical example of a heat pump, including hot water buffer tanks, pumps and distribution system, could cost between £500-£600,000 depending on the complexity and size of the facility. Even at £600,000, a heat pump system would a 2.6 year ROI.

Ofgem estimates that the current scheme will be retracted by 1 April 2016, unless a new budget is approved for the RHI funding. Any heat pump, however, bought before this date will be secured for 20 years with the RHI non-domestic scheme. ■



FEG install LEV system for UK food production company

DUST, VENTILATION AND FILTRATION problems are common in food processing applications who must contend with the paramount importance of product quality, environmental concerns and the health and well-being of employees. On top of this, organic food production within the EU is strictly regulated. EU rules apply to the production of organic food and feed, and to the labelling and control of organic products. With demand for organic food product increasing, major food retailers and manufacturers are expanding their range.

When a major UK food production company looked to invest in their new organic production facility for their biscuit and snack products, they looked to FEG Ltd to manage the project.



In the ingredients feed area, FEG provided a full design, plan, installation and commissioning service for a Local Exhaust Ventilation (LEV) system that provided an effective hood design, ductwork systems, heat recovery and recirculation system to ensure adequate ventilation and dust

extraction. This created a cost-effective and reliable solution from contaminant source to safe and efficient extraction.

For their new ingredients feed and mixing requirements facility, the company took advantage of FEG's expertise in CDM (Construction, Design and Management). With a project value of £1 million, FEG's involvement included heading a multi-department project team, controlling project spend, assigning resources, controlling and writing the Health & Safety File, supplier approval, control of contractors and issuing permits. With overall responsibility for ensuring all building modifications, plant modifications and new equipment met specification, FEG achieved production targets, within budget and timescale. ■



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Workplace incidents: are you prepared?



Regardless of what industry you're in, every business has to comply with regulations designed to reduce the risk of workplace incidents and the food sector is no different. But the old adage that accidents happen is no less true now, even with the correct procedures in place. So what should companies be looking to do, asks Philip Youdan, Partner at Cripps.

THE HEALTH AND SAFETY EXECUTIVE (HSE) has reported that over 5,000 injuries are registered with them from within the food and drink manufacturing industry each year. That's equivalent to roughly a quarter of all reported manufacturing injuries.

The data from HSE shows that around 16% of these injuries are classed as major; mainly caused by slips, falls from height or machinery and resulting in, for example, broken bones or hospitalisation. The balance, most frequently caused by lifting and

from management time, legal costs and penalties. Many offences can result in fines of up to £20,000 in the Magistrates Court and substantially in excess of this in the Crown Court. Costs incurred will also include the HSE inspector's time under their fee for intervention scheme. It's important that businesses have an action plan for responding to interview requests and some of the key issues are highlighted here.

Initial steps

The first step is obtaining legal advice once they've received a request to attend an interview. There are a number of factors to consider before deciding whether to attend the interview, and it's quite reasonable to notify the enforcement authority that, having received the request, legal advice will be sought before responding.

In what capacity are you attending?

When considering the request, ascertain whether the director or manager attending an interview is being asked to do so in his or her personal capacity or as a company representative. If attendance is being requested in the person's personal capacity, it isn't generally sensible for the company solicitor to represent them as their personal interests might differ from the company's, creating a conflict.

Advance disclosure

When properly considering a request to attend an interview, the advisor will want, as far as possible, to receive advance disclosure of the nature of the allegations being made and the evidence obtained. If the interview is at a very early stage and there is no real disclosure to be made, it is often helpful to

request details of the questions to be put.

This helps gain an understanding of the enforcement authority's thinking and also gives the company the chance to ensure the right people attend.

Alternatives to attending

Declining an interview is not an offence, although inferences could be drawn in certain circumstances. A company may provide a written response, as often health and safety incidents involve complicated technical issues, and these can be difficult to address in an interview setting. The person attending may find it difficult to provide clear explanations or may end up providing details that could harm the company's position. A written response gives the company the opportunity to explain its actions clearly without inadvertently incriminating itself; while also being viewed as assisting the HSE with their investigation. Sometimes this approach can be followed by an interview based on the written answers.

And finally

In general, companies should adopt a cooperative stance in their communications with any enforcement authority; however they should do so in a manner that protects their own interests. The aim is to reduce the prospect of enforcement action being taken while being able to say to the Court that they have cooperated, should prosecution follow.

Being properly prepared for an interview is only part of a full emergency plan. Other matters to be considered include notifying insurers, investigating the incident internally and dealing with any press interest. The key is to have a clear strategy for any possible outcome. ■



handling, slips and trips, being struck by objects, such as hand-knives or falling objects are described as over-3-day absence injuries. After an incident, the HSE will often need to investigate and may wish to interview the company's directors and senior management.

The way in which a company handles these requests can have a major impact on the approach taken by the HSE and whether a prosecution is pursued. There can be significant consequences of a prosecution,

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Producing more for less?

Energy management is a cost-effective strategy to save money and to act more responsibly as a business in the tough world of food processing. But are there ways to manage energy usage that perhaps food companies aren't aware of?

THE FOOD AND DRINK INDUSTRY is the single largest manufacturing sector in the UK, as well as being the fourth highest industrial energy user. With energy consumption on such a large scale, tackling the issue of energy management can be daunting for business owners and managers. Added to this are the specific issues faced by the food and drink industry, including volatile commodity prices, regulatory constraints for food safety, customer interest in sustainability, retailers and suppliers squeezing tighter margins and retailers pushing to dictate product prices, as well as consumers who want higher quality for less spend.

"The pressure for improved efficiency continues to increase," explains Andrew Todd, Head of Energy and Resource Management at Verco, the sustainability and climate change consultancy. "The reasons are multifaceted; customers demanding more sustainable suppliers, businesses searching for controllable costs in the face of reduced product margins and a need to mitigate against rapid energy price inflation. It would be understandable to expect these aligned incentives, coupled with the fact that energy efficiency opportunities typically give a good ROI, to make the case for energy efficiency straightforward. However, following the recession and resulting competition for capital, a short-term view persists in many organisations. In addition, a squeeze on headcount over the past 10 years has left many sites without dedicated energy management resources."

The Carbon Trust, independent experts working towards sustainability through carbon reduction, efficiency strategies and commercialising low carbon technologies, has identified energy management as one of the three main areas to focus on to reduce energy. "Effective energy management can reduce energy by 10 – 40%, which means

that there is much more potential for savings," says David Hilton, Managing Director of Vickers Energy Group, an energy management systems company. "It's time for businesses to develop an action plan that addresses the changes that need to be made."

More efficient energy management programmes are a key weapon for food and drink processors, but few are deploying them to their full potential. "Electricity and gas are commodities that, like other commodities, come with a fluctuating price tag," says Richard Badham, Marketing Manager, Schneider Electric. "Coping with this volatility is tenuous, as represented by a snapshot of the recent International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Association report. The report predicts grain prices will rise by 40% by 2020, milk prices by 50% and sunflower oil prices by 56%. While there is little that can be done about the price of energy, smart automation and monitoring of plant manufacturing at each process phase reduces the total amount of energy consumed, and that can make a big impact. From process and machine control to electrical distribution, critical power and data centre control across multiple plant sites, energy management effectively lowers production costs which improves profit margins."

With energy costs being one of the top outgoings for businesses, Hilton believes it's key for companies to think outside the box when it comes to new strategies to reduce any unnecessary waste within the processes. "Negotiating energy costs with energy providers can be a simple and often effective way to start addressing the rising bills," says Hilton.

Operational strategies that reduce energy usage mean that production is less dependent on moving commodity prices,

and lower production costs can translate to improved profit margins. "In economic hard times, those savings can be passed onto customers who increasingly demand more value," says Badham. "This builds brand loyalty for the long-term."

Government initiatives

The Climate Change Act of 2007 introduced a number of initiatives targeted at businesses to help them reduce the UK's carbon and greenhouse emissions by 80% by 2050. "There's pressure on business to act on their corporate social responsibility from the government and from the increasing demands of environmentally conscious consumers to understand where their produce comes from," says Hilton. "It's vital that companies are made aware of the simple measures that can be taken to address the issues and how they can transform the efficiency of the business. It's never been more important for businesses to get on board by reducing energy usage, particularly with the incentives and pressure to consider corporate social responsibility."

The Global Industrial Energy Efficiency Benchmarking report by the United Nations has projected that by 2050, global industrial energy use will increase by 50%. "Sustainable business practices that reduce consumption of natural resources like energy are key efforts in environmental preservation," explains Badham. "They are also important for food and drink processors because they directly tie to overall improved performance. Many in the industry are realising this fact, evidenced by a recent Deloitte study which highlighted that 49% of food and drink CFOs see a significant link between sustainability performance and financial performance."

Energy management strategies

"No two sites are the same," says Hilton. "For this reason, companies need to look at

their individual business and monitor specific needs. Starting the process of reducing energy consumption can be a daunting prospect. Many companies don't know how to correctly analyse their energy consumption or understand their bills. They may also not have the resources to implement an analysis of what needs to be actioned in order to reduce consumption and reduce budgets."

Tom Cumberlege, Senior Consultant at The Carbon Trust agrees. "The best and most robust way to focus on energy management issues is to focus on measurement to get a good idea of where key energy hotspots are in the business. We advise businesses to get an understanding of where energy is being consumed and developing that understanding of what processes across the site give rise to that energy consumption. It's often an area that gets overlooked and energy gets categorised as an operational cost that can't be addressed, when in reality it's an opportunity for food and drink processors to deliver significant financial savings with a very favourable payback from one to three years with low cost capital investment."

You cannot manage what you cannot measure

As important as it is to invest in a metering and monitoring system for energy usage, it's just as important to get information and act upon it. "Companies should focus on improving the efficiencies of priority areas onsite," says Cumberlege. "Understanding, checking and improving routine maintenance is key. Looking at chillers and refrigeration on site, for example, to explore whether old pipes need to be replaced or repaired or installing insulation upgrades. Looking at whether they have a steam system to provide heat distribution, making sure that energy is not being wasted and ensuring steam distribution is adequately insulated is key."

Heat recovery is essential in the food and drink industry. Rather than waste heat, it should be used to heat something else. When predicting energy usage, many businesses ignore the varying temperatures across different seasons and use one energy setting for the building across the whole year, resulting in excessive energy waste during the summer months. "With large spaces and areas that need different temperatures, it can be hard to maintain all of these effectively without wasting unnecessary energy and

money," Hilton points out. "Some buildings use a single switch to control heating and ventilation, which doesn't allow variation across the different areas of the building. However, maintaining different areas manually can be labour intensive and result in high costs. An energy management system allows companies to control a huge range of areas in different ways, with one system to monitor and regulate heating throughout the building, using weather predictions and sensors to maintain the correct temperatures."

The justification for heat integration projects is likely to be sensitive to process parameters and utility costs.

Creative solutions

As Todd points out, there is no silver bullet when it comes to successfully implementing an effective energy management system. "There is a need to turn data into useful information, and then provide the correct information to the right people in good time," says Todd. "Meaningful targets need to be set and processes put into place to identify and follow up on variances in performance. Whilst there is no short cut to energy management, there are a number of initiatives and approaches that have been consistently seen to deliver results at food processing sites."

Improve accountability

"Energy management is more than just compressed air leak management and steam trap maintenance and shouldn't be the sole responsibility of the site services manager," says Todd. "The 'user pays' concept is one way of ensuring appropriate ownership of energy usage. Instead of it being the responsibility of one person, such as the engineering manager, each department head holds a budget and is recharged for their energy use. This can be an effective way to ensure that process leads look at energy cost objectively when considering process alterations."

A prerequisite to this approach are wide meter coverage and a reliable reporting system.

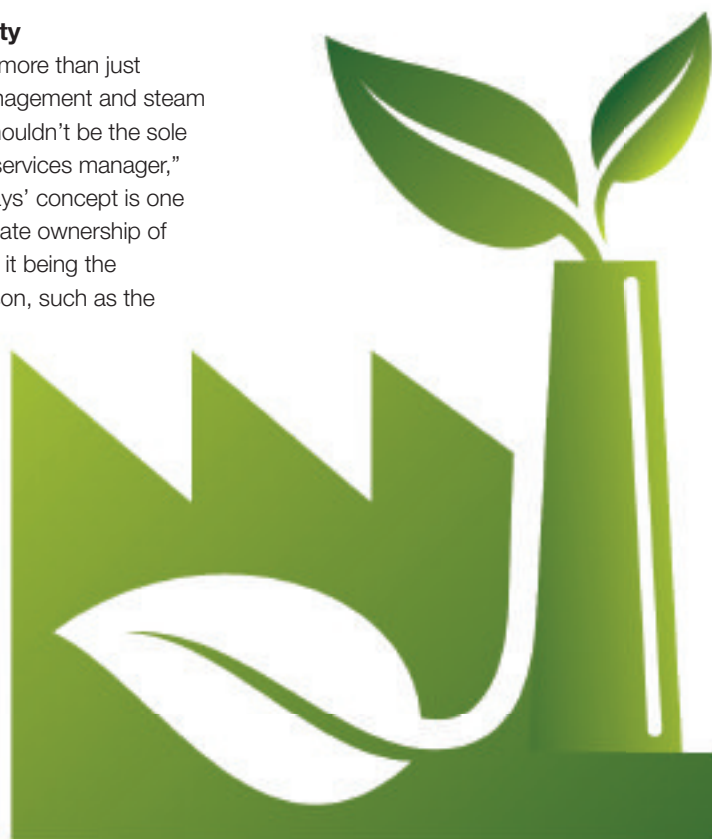
Engage and empower the workforce

"It's important that staff have a comprehensive awareness and motivation for resource efficiency onsite," says Cumberlege. "There are significant savings to be had through wider staff engagement. Staff need to understand the goals, and to embed it into the site's culture to drive home the importance of resource savings for the company. The most important thing about installing any energy management system is to ensure staff have the appropriate skills to engage with the system. The system itself can be used for reporting and validating on energy usage as well as to seek out more opportunities for the site. Having the appropriate skills to measure and monitor and target energy efficiency in factories is an essential component of energy management that needs to be addressed."

Companies can go even further by nominating departmental energy champions to share responsibility. "The use of noticeboards, posters and electronic dashboards can work well but the messaging needs regular reinforcement," says Todd. "Energy reduction competitions can be a great way to engage with and motivate staff."

Demystifying black box processes

The good news is that there's still a huge



opportunity in process optimisation and control improvement and capital requirement is likely to be lower. "Data availability and resource are typically the biggest barriers," Todd explains. "A good place to look for savings is black box processes. Typically complex by nature and often not looked at as long as a process parameter is being hit, these systems can be very difficult to monitor on an ongoing basis and are commonly recipe dependent. A good example in the food processing industry of a system which is worth interrogating is a clean-in-place (CIP) system. The use of advanced analytical techniques applied to high frequency data over multiple cleans will almost always lead to identified improvement opportunities."

Top tips

Vickers Energy Group has 10 top tips for food processors to save energy.

1. Develop an environmental strategy for your corporate social responsibility
2. Identify where the problems lie within production and address them directly
3. A free audit can be a simple, cost-effective way to understand more about your energy usage
4. Install a sophisticated energy management system to centralise controls for a low-maintenance and effective way to address consumption
5. Analyse your energy bills and challenge any errors or complexities
6. Refrigeration is key to energy

management in food processing; can products be stored at a higher temperature?

7. Heat recovery: recycle heat waste and use it again for a more effective process on site
8. Continue to monitor and review long-term
9. Don't be afraid to tackle issues head on
10. Train staff and implement strategies across the whole business.

"Energy management programmes can also have a positive impact in areas of regulatory requirements and the ever-increasing cost of labour," says Badham. "The benefits are only as limited as a company's creativity in implementing them." ■

IChemE calls for global action on water usage in food production

The Institution of Chemical Engineers (IChemE) is pushing for coordinated action to reduce the amount of hidden water used in food and drink production. Around 90% of all freshwater is used by agriculture (70%) and industry (20%), leaving just 10% for domestic use. On average, each person consumes between 2,000 – 5,000 litres of water embedded in their food every day, or between 730,000 – 1.825 million litres annually. And this is set to increase as the population grows and more people move towards a Western-style diet, with water extraction estimated to grow by over 50% to 6.9 billion m³ annually. And while seven per cent of the world's population live in water scarce areas, by 2050 this will escalate to two thirds of the world's population.

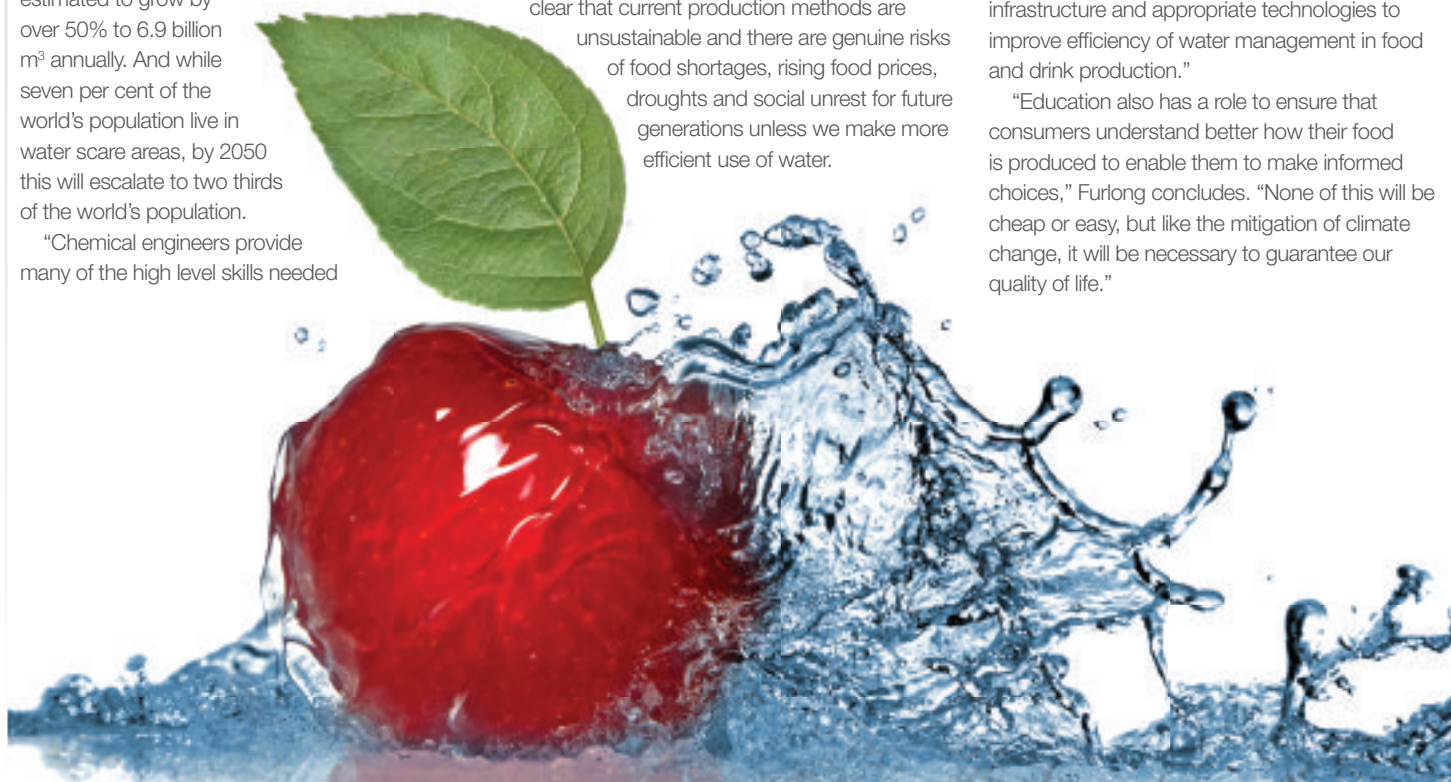
"Chemical engineers provide many of the high level skills needed

to provide the water, food, medicines and energy to sustain our ever-growing population," says Andy Furlong, IChemE's Director of Policy. "In recent years and decades, we have seen how difficult it has been to agree and set targets to manage issues like climate change. Population growth will throw up similar challenges and it will have a direct impact on two of the building blocks for life; food and water. Estimates suggest that we will need to produce 60% more food by 2050. Agriculture will need around 19% more water to produce that extra food. It is

clear that current production methods are unsustainable and there are genuine risks of food shortages, rising food prices, droughts and social unrest for future generations unless we make more efficient use of water.

"There are solutions, but these will require political will, major investment and lifestyle changes," Furlong continues. "Chemical engineers are recommending that a global target is set to reduce the amount of water used in food production worldwide by 20%. In addition, a combination of regulations and incentives should be introduced to require industry to monitor their water usage, as well as rewarding them for using alternative and sustainable water supplies. Revised planning frameworks and investment will be needed for the construction of new capacity, infrastructure and appropriate technologies to improve efficiency of water management in food and drink production."

"Education also has a role to ensure that consumers understand better how their food is produced to enable them to make informed choices," Furlong concludes. "None of this will be cheap or easy, but like the mitigation of climate change, it will be necessary to guarantee our quality of life."



One-stop solution to industry skills crisis?

The impending and potentially devastating skills shortage that faces the food and drink industry will come as no great surprise to those in the sector. FoodStart, a new one-stop website hopes to offer UK-wide work experience options to those considering a career in the food industry.

ACCORDING TO A RECENT SURVEY from recruitment consultancy JAM, almost half of the 750 respondents, who work in the food and drink industry, said their company was struggling to find candidates with high-level skills. Shift managers and product development specialists were highlighted as particularly scarce. And when asked what they thought the greatest risk to the UK food and drink sector is over the next 10 years, 45% said the lack of young people emerging from the education system with the necessary skills for work in the industry. And yet when they were questioned about attracting new talent, 64% said they believed that industry itself wasn't doing enough to raise awareness of career opportunities.

FoodStart

According to the Institute of Food Science & Technology (IFST), who conducted their own research, food studies students are frustrated at the perceived lack of work experience opportunities. They also believe that a lack of understanding of career options is a barrier to joining the food sector. Conversely, according to an IFST survey, 72% of employers identified work experience as a positive way of accessing new talent, highlighting that there is a clear disparity in the industry.

IFST decided to join the growing number of organisations attempting to tackle this problem by launching FoodStart. Designed to bring together UK-wide work experience at all levels, from school-based programmes to graduate placements and internships, employers will be able to showcase their opportunities and attract new talent.

"Food and drink manufacturing needs to have a single point of focus if it is to attract students who are also looking at roles in automotive, aerospace and telecommunications," says IFST Chief Executive Jon Poole. "FoodStart provides a single point to ensure that the food sector has an increased visibility among young

people. Students can search and apply for work experience through the FoodStart site and therefore see for themselves the exciting career opportunities that the sector provides. The online platform will also enable students to record evidence from placements which they can use to demonstrate their interest in the sector for inclusion in their CVs – something that we hope will soon become the gold standard in recruitment."

The service is free for both students and employers to use, and is funded by sponsorship from a variety of food sector businesses. Current sponsors include Adelle, Barfoots, Food & Drink & Training Education Council, Leatherhead Food Research, Campden BRI, More People, Cornelius, Raynors Sandwiches, DNV-GL, R Biopharm, Food Additives & Ingredients Association and Waitrose.

"Sponsorship opportunities are ongoing,"



adds Poole. "Anyone wishing to make a donation will not only make a measurable difference to young food enthusiasts, but will also be investing in their own future. All FoodStart donations are recognised on the FoodStart website." ■

Visit the website at www.foodstart.org.uk.

Why we're supporting FoodStart

Cornelius

"Cornelius supports FoodStart as part of our CSR charter and we are committed to contribute to the food industry in developing healthy and nutritional balanced products," says Per Rehne, European Health & Food Business Manager at Cornelius. "We also believe that as a company we should take responsibility for the education and development of the next generation that will shape our industry. Cornelius also works with a number of universities to help students working on industry relevant projects and supports SMEs with product development and innovation."

R-Biopharm

"The food industry provides worthwhile and fulfilling careers for millions of people in the UK and it is of the utmost importance that we continue to attract youngsters who are keen and willing to learn," says Simon Bevis, Managing Director at R-Biopharm. "Placements

are an excellent way of introducing young people to the complex and fascinating processes in the food industry and R-Biopharm is very pleased to be able to give the FoodStart programme its full support."

Jamie Oliver, TV Chef

"We need people with all kinds of backgrounds and skills working in food, and whether you're a genius or a hard grafter, I know first hand that this industry has never been more dynamic," says Oliver. "This generation and the next will make the biggest impact on the food industry we've ever seen."

"Right now, in the UK and around the world, this business is at the heart of some really exciting innovations, and as so much of the industry is focused on doing the right thing for farmers', land, the planet and, of course, consumers – it really is a wonderful time to be starting out. I can't recommend FoodStart enough – it's a brilliant idea."

Food Focus

▶ ULMA'S NEW TFS THERMOFORMERS

ULMA'S product manager, Alastair Cook, said: "The less downtime for cleaning means more profit for the customer. The TFS Thermoforming machines have been designed so they are easily cleaned. Attention has been given to the type of material used in the construction, such as replacing some anodised aluminium components with stainless steel."



Developing packaging solutions worldwide, ULMA supplies thermoforming solutions to suit customers' requirements. One of the country's leading suppliers of packaging machinery and complete automated lines, ULMA'S thermoformers range from the TFS 200 to TFS 700 skin, with the TFS 500 and TFS 600 as intermediate models. Packaging solutions offered by ULMA include vacuum bags to extend shelf life and packs with modified atmosphere.

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▶ CARGILL REVEALS HOW 2015'S TOP FOOD TRENDS TRANSLATE INTO COCOA AND CHOCOLATE APPLICATIONS

From Clean to Clear Label', 'Good Fats, Good Carbs' and 'More in Store for Protein' are just three food trends examined in the latest 'T for Trends' webinar presented by Cargill's cocoa and chocolate business.

The webinar was co-presented by Cargill's Brigitte Bayart, Senior Marketing Manager, Chocolate, and Lu Ann Williams, Head of Research at Innova Market Insights.

"Through our unique T-model approach we combine broad food knowledge with deep cocoa and chocolate expertise and apply the latest trends to the development of our ingredients. This in turn provides our customers with the knowledge and ingredients they need to create products to meet their consumers' demands – and stand out from the crowd", said Bayart.



CARGILL

www.cargillcocoachocolate.com/innovations/driven-by-trends/index.html

▶ COLOUR CHANGE SYSTEM FOR CEREALS AND SNACKS

An innovative colour-change system for packs of assorted extruded cereals and snacks has been developed by Baker Perkins. The 'Spectrum' technique extends Baker Perkins' extrusion capability and cuts production costs. It enables changeover between colour variations of an extruded product to be made 'on the run' with minimal waste.



A typical application in a single pack in the cereals sector is mixed fruit colours; in the snacks arena, matching the colour of vegetable-flavoured snacks such as carrot, beetroot, tomato, broccoli or peas.

This skid-based system spells an end to the inconvenience and cost of cumbersome mixing and storage of different coloured snacks or cereals, with its adverse impact on waste, hygiene and shelf life.

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▶ ADM CELEBRATES FIVE YEARS OF COMMITMENT TO GHANA'S COCOA INDUSTRY AND LOCAL COMMUNITIES

Cocoa and chocolate expert, ADM Cocoa, is marking five years of dedicated cocoa processing in the Ashanti Region, with a continuation of the successful partnership with key stakeholders, such as the Ghana Cocoa Board, and a string of important local initiatives. Since opening the world class cocoa processing facility in Kumasi in 2009, ADM has created over 250 jobs at its 75,000 square metre purpose built site, which houses a bean warehouse, processing plant and finished goods' warehouse. ADM has also nurtured a local supplier network of more than 200 suppliers. A founding member of the World Cocoa Foundation, ADM has pioneered numerous areas of social improvement across the region.



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▶ J & E HALL DIGITAL CONDENSING UNITS INSTALLED AT FARM SHOP

Three J & E Hall Series 5 Digital Twin Scroll Commercial Condensing Units have been installed in an extension to the farm shop at the Woodlands Nursery and Garden Centre in Leicestershire. With a capacity of up to 31kW, the new Series 5 digital units are ideal for retail premises and are a proven packaged alternative to multi-compressor racks.



The installer was the Jordon Group of Oldham.

Six cold stores, a dry storage area, an administrative area and staff room form part of the extension. Fruit, vegetables, meat, and fish are stored ready for use in the farm shop and temperatures for the cold stores range from -2°C to +4°C. A freezer room has to maintain a temperature of -21°C.

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▶ FOOD SAFETY AND ALLERGENS

Allergen quantification can be challenging. LGC, together with Manchester University, has developed a quality control material for detecting peanut allergen in food, with a blank material and matrix material with peanut protein added at 10 ppm (mg kg⁻¹).



These QC materials, the first to be prepared like oral food challenge materials for diagnosing peanut allergies, have proven homogeneity and stability. Gill Holcombe, Head of Reference Materials Production at LGC said, "Reference materials are key to improving reliability of allergen analysis results. Our emphasis is on 'Science for a safer world'; our new quality controls represent real progress in ensuring safer food for those with peanut allergy".

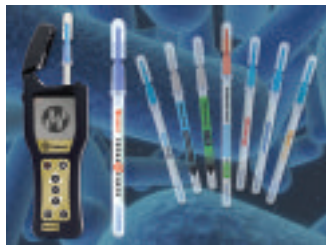
LGC supplies reference materials to support measurement accuracy and quality control in laboratories worldwide.

LGC

www.lgcstandards.com

► FOOD POISONING HAZARDS FROM CHICKEN DETECTED IN MINUTES

The Food Standards Agency has highlighted the risk of Campylobacter food poisoning from raw chicken and made several recommendations for reducing the hazards associated with cross contamination. To help eradicate this risk, Hygiena International have introduced the CrossCheck rapid test system which can be used by anyone and anywhere, with results provided in minutes. Detecting pathogens such as Campylobacter is a difficult, skilled and expensive process giving results after several days. The new CrossCheck simple rapid test specifically measures the presence of raw meat and fish residues giving results in 2 - 5 minutes. If raw meat residues are detected, there is a potential risk of food poisoning. CrossCheck is an integrated, self-contained test device that includes a swab for sample collection.



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► BRC GLOBAL STANDARD FOR FOOD SAFETY ISSUE 7 PROMPTS GLASSGUARD® WARNING AGAINST LIGHTING COMPLACENCY

GlassGuard® is keen to remind food manufacturers not to overlook lighting while focusing attention on the new BRC Global Standard for Food Safety Issue 7. Whilst there are no changes to lighting requirements, safer lighting specialist GlassGuard® is reiterating its message to food manufacturers to consider their lighting requirements, alongside the criteria changes.

Last year the BRC reported Building Fabric (Section 4.4) and Glass, Brittle Plastic, Ceramics and Similar Materials Control (Section 4.9.3) as leading failures in a list of leading non-conformity groups, prompting GlassGuard® to warn manufacturers against complacency when it comes to lighting management. GlassGuard® subsequently welcomed the Guide to Lighting Best Practice for the BRC Global Standard for Food Safety, published by the BRC to assist food manufacturers.



GLASSGUARD
01842 763 752 www.glassguard.co.uk

► THE NEW SERIES 5 YTRON-Z IN-LINE HOMOGENISER

The YTRON-Z in-line homogeniser supplied by Ytron-Quadro (UK) Limited has proved to be a great asset to the Dairygold Food Ingredients plant in Leeds. Dairygold has commented:

"We are driven by innovation. Innovative products continue to delight our customers and win awards so we have a constant flow of projects both product & process focused fed through the Dairygold joint Irish & UK based Innovation and Engineering team. The YTRON-Z unit was identified as a possible product improver after its benefits in yoghurt production were demonstrated."

We booked a YTRON-Z for long term trials in our Leeds factory and conducted exhaustive trials across the DFI product range. The outcome was extremely positive. Our already high product quality visually improved. Product was smoother and a 'glossy' effect was seen across all products. The lower fat variants gained body too and has now delivered what we feel is a "best-in-class" product. Starch is used in some products and the presence of un-hydrated starch molecules in finished product is clearly not acceptable

► VEOLIA SERVES UP BIOGAS AT CANNINGTON COLD STORES

Veolia has installed a 2MW biogas CHP, which adds to four existing 324kW CHPs successfully installed at Cannington Cold Stores' 45,000 tonne Bridgwater site in Somerset. The biogas solution from Veolia, which is fuelled by waste food, goes a significant way to helping the chilled food storage company improve its environmental impact and to achieve energy saving targets. The new 2MW biogas CHP at Cannington Cold Stores, supplied by Cogenco Veolia's package CHP team, will increase the generation of electricity by burning biogas. This is derived from waste food processed through an anaerobic digester. Surplus electricity is exported to the grid under Cannington Cold Stores' Feed In Tariff (FITs). The excess heat from the CHPs feeds the digesters to run the biogas generation process.



VEOLIA
www.veolia.co.uk

► RAVENWOOD LINERLESS GO RUGGED FOR PRO2PAC

Linerless labelling specialist Ravenwood Packaging will be showcasing its 'complete package' of labelling technology at Pro2Pac 2015 including linerless labelling and the development of the ultimate materials and adhesives that produce seamless production lines. The company supplies the Comac 500 coating machine and a wide range of Nobac applicators capable of applying sleeves in all formats varying from C-wrap and full wraps, to packs for the chilled foods and convenience markets.

New products include Slideable labels made from thicker materials to view the product inside and skin pack labelling to reduce tray numbers and can include exceptionally bulky items.



RAVENWOOD UK
01284 749144



to our customers. The YTRON-Z gave us another tool to eradicate these occurrences and speed up our process without damaging the functionality of the starch.

"The results were so conclusive that 2 YTRON-Z units were ordered and installed in the two production lines for packing bulk and smaller Foodservice size packs."

YTRON-QUADRO (UK) LIMITED
+44 (0)1494 792898 www.ytron-quadro.co.uk

Food Focus

► MORE IDEAS FOR READY MEALS



Its hugely successful range of ingredients for ready meals manufacturers has been enhanced by Snowbird foods with the launch of two more exciting and innovative fully cooked and frozen products. Certain to deliver the sweet taste of success are Pork & Apple Meatbites which feature 60% top quality British pork flavoured with iconic Bramley apple plus onion, garlic paste, wheat flour, black pepper, ginger, nutmeg, marjoram, parsley and sage. Its golden coating contrasts with the darker hue of its new sister product, Pork and Chorizo Meatbites, which delivers gentle heat. Both meatbites weigh 8g. and the pork and chorizo variant boasts a meat content of over 90% which is accompanied by a complex mix of a dozen flavourings. Both products are suitable for use as pizza toppings, in wraps, with cheese gratins, pasta bakes and riced based dishes and can also be added to soups.

SNOWBIRD FOODS LTD
020 8805 9222 www.snowbirdfoods.co.uk

► ALLERGENS IN CUMIN CAUSE PRODUCT RECALLS

A number of product recalls in America and Canada have been linked to adulterated ground cumin which contains the potentially life-threatening allergens ground peanut and almond powders.

In the UK a warning has been issued that the adulterant ingredient would present a serious health risk to people sensitive or allergic to the nuts. It is believed the contaminated cumin is of Indian origin, routed through Turkey on its way to America and, possibly, European markets. Third generation UK flavours house Unbar Rothon immediately checked with its supplier who confirmed there was neither peanut nor almond in the cumin it supplied. The BRC accredited supplier has been used by Unbar Rothon for many years without any reported incidences of allergen cross contamination.

UNBAR ROTHON
Tel: 01277 632211



► BRITISH-BASED PUMP MANUFACTURER ENJOYS INTERNATIONAL SUCCESS

The pioneering spirit characterising specialist pump manufacturer Flotronic Pumps Limited's approach to innovation and design has been driving their success in developing new markets overseas. Flotronic, the only British-owned specialist manufacturer of air-operated double-diaphragm pumps in the UK, has seen exports as a percentage of total sales rise from 15% in 2003 to 40% in 2013. 25% of exports go to Europe - but pumps are being sold worldwide including the US and Canada (5%) and the Far East (2%) - with the remaining 8% distributed to the Middle East, India, South America, South Africa and Australasia. The company is seeing particularly high overseas growth in pump sales into its target Pharmaceutical, Food & Beverage, Chemical manufacture and Cosmetics markets.



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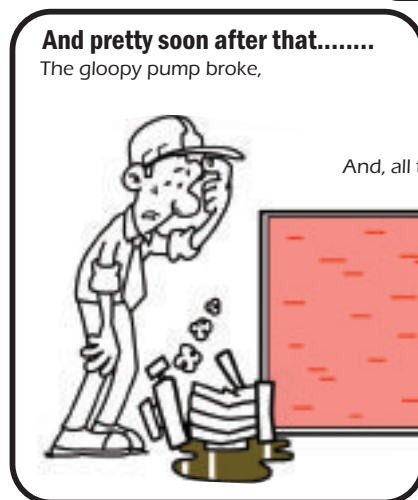
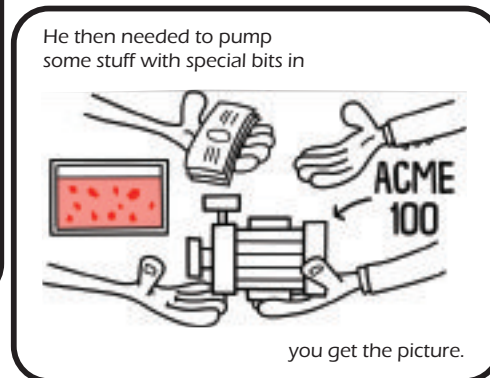
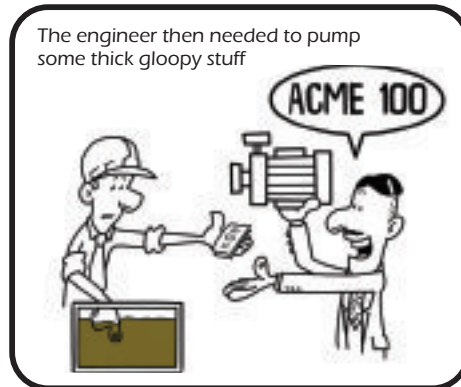
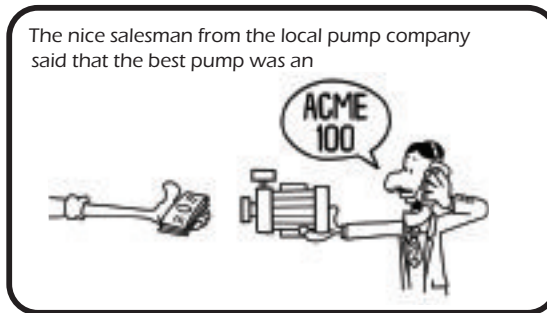
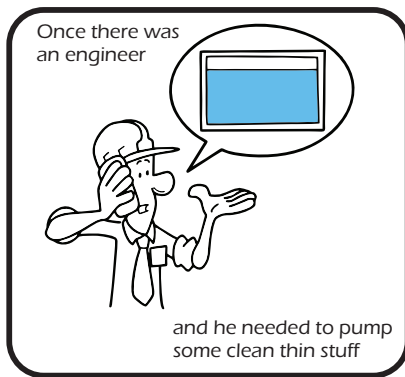
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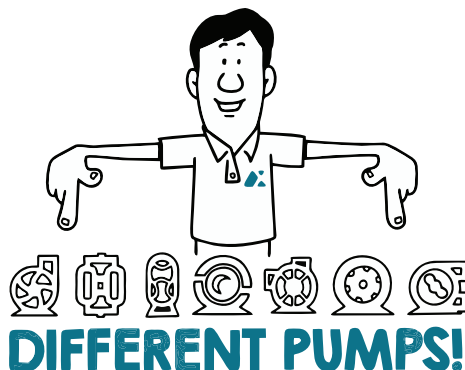
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